

ABSTRACT

A method and digital circuit to locate and output a binary encoded position of a leading one in an input string of bits. A plurality of input encoders are used, each configured to accept as input equal length sub-strings of the original input string and further configured to generate a binary encoded position of the leading one within the sub-string. Bit value detectors are also used to indicate if a one exists within each sub-string. An encoder arbitrator selects the binary position output of the binary encoder that contains the most significant one of the original input and forwards this binary position to the final output. This position is concatenated with the output of a most significant sub-string encoder that generates a binary encoded representation of the most significant sub-string containing the leading one. The concept is fully extendible to detection of leading or trailing ones or zeroes.